

## CLAIMS

What is claimed is:

1. A method of providing timing information to one or more radio heads connected to a central unit of a wireless communications system, comprising:

5           transferring data between the central unit and at least one radio head via a  
            first set of conductors of a first cable using an asynchronous transmit  
            method; and  
            sending timing data from said central unit to said at least one radio head  
            via a second set of conductors of said first cable using a synchronous  
10           transmit method.

2. The method of claim 1 wherein transferring data between said central unit  
and said at least one radio head via said first set of conductors of said first cable using  
an asynchronous transmit method comprises transferring said data between said  
central unit and said at least one radio head via said first set of conductors of said first  
15       cable using an Ethernet protocol.

3. The method of claim 2 wherein transferring said data between said central  
unit and said at least one radio head via said first set of conductors of said first cable  
using an Ethernet protocol comprises transferring said data between said central unit  
and said at least one radio head via said first set of conductors of said first cable  
20       according to 10/100 Base-T Ethernet protocols.

4. The method of claim 1 wherein:

transferring said data between said central unit and said at least one radio  
head via said first set of conductors of said first cable using an  
asynchronous transmit method comprises transferring said data  
between said central unit and said at least one radio head via at least  
four conductors of said first cable; and  
sending said timing data from said central unit to said at least one radio  
head via said second set of conductors of said first cable using a  
synchronous transmit method comprises sending said timing data from  
said central unit to said at least one radio head via at least two  
conductors of said first cable.

5. The method of claim 4 wherein sending said timing data from said central unit  
to said at least one radio head via said second set of conductors of said first cable using  
a synchronous transmit method comprises sending said timing data from said central  
unit to said at least one radio head via said second set of conductors of an unshielded  
twisted pair first cable.

6. The method of claim 5 wherein sending said timing data from said central unit  
to said at least one radio head via said second set of conductors of an unshielded  
twisted pair first cable comprises sending said timing data from said central unit to said  
at least one radio head via said second set of conductors of a category 5 Ethernet cable  
first cable.

7. The method of claim 1 wherein said at least one radio head comprises at least one wireless radio transceiver and further comprising timing the radio signal transmissions of said wireless radio transceiver of said at least one radio head based on said timing data supplied to said at least one radio head via said second set of  
5 conductors of said first cable.

8. The method of claim 1 wherein sending timing data from said central unit to said at least one radio head via said second set of conductors of said first cable using said synchronous transmit method comprises sending Carrier Frequency Reference data from said central unit to said at least one radio head via said second set of  
10 conductors using said synchronous transmit method.

9. The method of claim 8 wherein sending Carrier Frequency Reference data from said central unit to said at least one radio head via said second set of conductors of said first cable using said synchronous transmit method comprises sending Carrier Frequency Reference data from said central unit to said at least one radio head via said  
15 second set of conductors of said first cable using a synchronous differential transmission method.

10. The method of claim 8 wherein sending timing data from said central unit to said at least one radio head via said second set of conductors of said first cable using said synchronous transmit method further comprises sending Air Frame  
20 Synchronization timing data from said central unit to said at least one radio head via said second set of conductors of said first cable using said synchronous transmit method.

11. The method of claim 10 wherein sending Air Frame Synchronization timing data from said central unit to said at least one radio head via said second set of conductors of said first cable using said synchronous transmit method comprises sending Air Frame Synchronization timing data from said central unit to said at least one radio head via said second set of conductors of said first cable using a synchronous differential transmission method.

12. The method of claim 10 wherein said second set of conductors comprises at least four conductors and wherein:

10 sending Carrier Frequency Reference timing data from said central unit to said at least one radio head via said second set of conductors of said first cable comprises sending Carrier Frequency Reference timing data from said central unit to said at least one radio head via a first pair of conductors of said second set of conductors of said first cable; and  
15 sending Air Frame Synchronization timing data from said central unit to said at least one radio head via said second set of conductors of said first cable comprises sending Air Frame Synchronization timing data from said central unit to said at least one radio head via a second pair of conductors of said second set of conductors of said first cable.

13. The method of claim 1 further comprising receiving timing information at said central unit from a GPS receiver and wherein sending timing data from said central unit to said at least one radio head via said second set of conductors of said first cable comprises sending timing data based on said timing information from said central unit to said at least one radio head via said second set of conductors.

14. The method of claim 1 wherein said cable is a first cable and said at least one radio head is a first radio head and further comprising:

transferring data between said central unit and a second radio head via a first set of conductors of a second cable using said asynchronous transmit method;

sending timing data from said central unit to said second radio head via a second set of conductors of said second cable using said synchronous transmit method.

15. The method of claim 14 further comprising coordinating the timing of radio transmissions from said first and second radio heads via said timing data supplied to said first radio head via said first cable and via said timing data supplied to said second radio head via said second cable.

16. The method of claim 1:

further comprising receiving timing information at said central unit from a GPS receiver;

wherein said at least one radio head comprises at least one wireless radio transceiver;

wherein said first cable is a category 5 unshielded twisted pair Ethernet

cable and wherein said first set of conductors of said first cable

comprises at least four conductors of said first cable and wherein said

second set of conductors of said first cable comprises at least two

conductors of said first cable;

wherein sending timing data from said central unit to said at least one  
radio head via said second set of conductors of said first cable using  
said synchronous transmit method comprises sending Carrier  
Frequency Reference data from said central unit to said at least one  
radio head via said second set of conductors using said synchronous  
transmit method;

wherein sending timing data from said central unit to said at least one  
radio head via said second set of conductors of said first cable  
comprises sending timing data based on said timing information from  
said central unit to said at least one radio head via said second set of  
conductors; and

further comprising timing the radio signal transmissions of said wireless  
radio transceiver of said at least one radio head based on said timing  
data supplied to said at least one radio head via said second set of  
conductors of said first cable.

17. The method of claim 16 wherein sending timing data from said central unit to  
said at least one radio head via said second set of conductors of said first cable using  
said synchronous transmit method further comprises sending Air Frame  
Synchronization timing data from said central unit to said at least one radio head via  
said second set of conductors of said first cable using said synchronous transmit  
method.

18. The method of claim 16 wherein said cable is a first cable and said at least one radio head is a first radio head and further comprising:

transferring data between said central unit and a second radio head via a first set of conductors of a second cable using said asynchronous transmit method;

sending timing data from said central unit to said second radio head via a second set of conductors of said second cable using said synchronous transmit method.

19. The method of claim 18 further comprising coordinating the timing of radio transmissions from said first and second radio heads via said timing data supplied to said first radio head via said first cable and via said timing data supplied to said second radio head via said second cable.

20. A wireless communications transceiver assembly comprising:

a central unit comprising a GPS timing module coupled to a GPS antenna;

a first radio head located remote from said central unit;

a first cable connecting said central unit to said first radio head, said first

5 cable comprising at least a first set of conductors and a second set of  
conductors;

wherein data is transferred between said central unit and said first radio

head via first set of conductors of said first cable using an

asynchronous transmit method; and

10 wherein timing data is sent from said GPS timing module to said first radio

head via said second set of conductors of said first cable using a

synchronous transmit method.

21. The assembly of claim 20 wherein said first cable comprises at least six  
conductors and wherein said first set of conductors of said first cable comprise at least  
15 two pair of conductors and wherein said second set of conductors of said first cable  
comprises at least one pair of conductors.

22. The assembly of claim 21 wherein said second set of conductors of said first  
cable comprises at least two pair of conductors.

23. The assembly of claim 22 wherein said first cable is a category 5 unshielded  
20 twisted pair Ethernet cable.



24. The assembly of claim 21 wherein said at least one pair of conductors of said second set of conductors of said first cable form at least a portion of a differential transmission link between said central unit and said first radio head.

25. The assembly of claim 20 wherein said first radio head comprises at least one wireless radio transceiver and wherein the timing the radio signal transmissions of said wireless radio transceiver of said first radio head is based on said timing data supplied to said first radio head via said second set of conductors of said first cable.

26. The assembly of claim 20 wherein said timing data comprises Carrier Frequency Reference data.

27. The assembly of claim 26 wherein said timing data comprises Carrier Frequency Reference data and Air Frame Synchronization timing data.

28. The assembly of claim 20 further comprising:

a second radio head located remote from said central unit;

a second cable connecting said central unit to said second radio head,

said second cable comprising at least a first set of conductors and a second set of conductors;

wherein data is transferred between said central unit and said second radio head via said first set of conductors of said second cable using an asynchronous transmit method; and

wherein timing data is sent from said GPS timing module to said second radio head via said second set of conductors of said second cable using a synchronous transmit method.

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[illegible]

30. A method of providing timing information to a plurality of radio heads  
connected to a central unit of a wireless communications system, comprising:

transferring data between the central unit and a first radio head via a first  
set of conductors of a first cable, said first radio head having a wireless  
radio transceiver;

transferring data between the central unit and a second radio head via a  
first set of conductors of a second cable, said second radio head  
having a wireless radio transceiver;

sending timing data from said central unit to said first radio head via a  
second set of conductors of said first cable;

sending timing data from said central unit to said second radio head via a  
second set of conductors of said second cable;

wherein the timing of radio signal transmissions by said wireless radio  
transceiver of said first radio head depends on said timing data  
supplied to said first radio head via said second set of conductors of  
said first cable; and

wherein the timing of radio signal transmissions by said wireless radio  
transceiver of said second radio head depends on said timing data  
supplied to said second radio head via said second set of conductors  
of said second cable.

5            32. The method of claim 31 wherein said first and second cables are unshielded twisted pair cables.

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